177 Delivery of tobramycin via the I-neb™ Adaptive Aerosol Delivery (AAD®) system and the Pari LC Plus® nebulizer

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Background and Aim: The suitability of the I-neb™ AAD® System to aerosolize Tobramycin Inhalation Solution 60 mg/mL, 5 mL (TIS, Chiron UK Ltd, Hounslow, UK) has not been established. We compared the dose delivery of TIS via I-neb with that from the Pari LC Plus® nebulizer with DeVilbiss compressor.
Methods: Three I-neb devices fitted with metering chambers designed to deliver a preset dose of 1.4 mL, and three Pari nebulizers were weighed, loaded with 5 mL, and run on the CEN simulated breathing pattern. Aerosol was collected on a filter placed between a MiMiC Emulator (Respironics) and the device. Emitted dose was determined by gravimetric output (mg solution), and delivered dose was determined by both HPLC and bioassay (mg TIS). All tests were conducted in triplicate.
Results: The mean respective emitted dose and HPLC recoveries were; 1388 mg and 76 mg (I-neb), compared with 3504 mg and 106 mg (Pari). The mean bioassay doses were equivalent to the mean HPLC doses.
Discussion and Conclusions: As I-neb has a delivered dose of 76 mg, and AAD Systems have been shown to deposit 60% of the dose in the lung [1], this would result in a TIS lung dose of 45 mg. The Pari LC Plus has a higher delivered dose, but the overall lung deposition is only 15% of the fill volume, i.e. 45 mg [2]. The results of this test suggest that in patients the lung dose would be similar for the two devices tested.

References

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178 Itraconazole monotherapy for allergic bronchopulmonary aspergillosis in cystic fibrosis (CF)

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Allergic bronchopulmonary aspergillosis (ABPA) is an allergic reaction to colonization of the lungs with *Aspergillus fumigantus* (*Af*) and affects around 10% of people with CF.
We report of ABPA in a 17 year old girl (dF508/K1303) with CF accompanied by liver cirrhosis and insulin dependant diabetes (CFRD). The criteria for ABPA were: increasing cough, breathlessness, occasional hemoptysis, new infiltrates on radiography and decline in FEV1 from 79 to 63%, with positive laboratory tests (see Table). Because of diabetes, steroids were not given. She was treated with itroconazole 200 mg/daily for 20 months. No changes in liver function tests or other side-effects were observed. Up till now, ABPA has not recurred (2.5 years after th). Laboratory follow up is in Table:

	Af in sputum	Total IgE (kU/L)	*Af*-IgE (RAST)	FEV1 (% of predicted)	Skin prick test
Before itroconazole	++	1604	4+	63	+++
2 months itroconazole	+	1196	4+	69	+++
20 months itroconazole	–	238	3+	79–85	++
1 y after th	-	192		77–82	++

Conclusion: At present, there are still no conclusive treatment recommendations for ABPA. Spontaneous resolution is possible. Nevertheless, our patient seemed to benefit from itroconazole monotherapy in circumstances when a complicated course of ABPA could be expected, due to multiple organ CF expression/complications (i.e. cirrhosis, CFRD, hypersplenism, hemoptysis, puberty delay, osteoporosis). Itroconazole monotherapy has been reported previously in a limited number of patients, as well as 2 cases of voriconazole monotherapy recently. However, voriconazole is expensive and also has considerable adverse effects. We think that itroconazole monotherapy should be considered as a reasonable choice of treatment when steroids are deemed unsuitable, especially in patients with no previous ABPA and in countries with low income.

179 Pulmonary deposition of inhaled tobramycin (TOBI), before and after physiotherapy and inhaled salbutamol in cystic fibrosis (CF) patients

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Patients with CF are often treated with inhaled antibiotics and physiotherapy. No study evaluating the pulmonary deposition of inhaled antibiotics before and after physiotherapy and bronchodilators has been found in literature.
Aim: To evaluate TOBI pulmonary deposition before and after physiotherapy and inhaled salbutamol.
Patients and Methods: A clinical controlled, prospective study including CF patients colonized by *P. aeruginosa* was done from July to November 2005. Exclusions criteria: pulmonary exacerbation at the scintigraphy moment, changes in medication between phase I and II, FEV1 < 25% predicted. Pulmonary scintigraphy was performed in a equipped camera with a LEAP collimator that showed the lungs drug penetration after inhalation with technetium-99mTc marked TOBI and pulmonary perfusion with albumin99mTc (phase I). Phase II: after physiotherapy with flutter, the same procedure was done in all patients one month later. The efficiency of marked TOBI-99mTc was 87%.
Results: 24 patients (12 males). Mean age (12.85 SD 6.64) ranged from 5–27 years. TOBI pulmonary deposition was lower at the phase II in total lungs: $p = 0.006$, right lung: $p = 0.003$, left lung: $p = 0.016$, anterior right lung: $p = 0.004$; posterior right lung $p = 0.003$; anterior left lung: $p = 0.011$; posterior left lung: $p = 0.025$, when compared to phase I.
Conclusion: Physiotherapy with flutter and inhaled salbutamol, immediately before TOBI inhalation makes the TOBI pulmonary deposition less efficient in CF patients.

180* Pulmonary deposition of inhaled tobramycin (TOBI), before and after physiotherapy and inhaled salbutamol and correlation with Shwachman Score (SS) in cystic fibrosis (CF) patients

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Patients with CF are often treated with inhaled antibiotics and physiotherapy. No study evaluating the pulmonary deposition of inhaled antibiotics before and after physiotherapy and bronchodilators has been found.
Aim: To evaluate TOBI pulmonary deposition before and after physiotherapy and inhaled salbutamol and to correlate with SS.
Methods: A clinical controlled, prospective study including CF patients colonized by *P. aeruginosa* was done from July/November 2005. Exclusions criteria: pulmonary exacerbation at the scintigraphy moment, changes in medication between phase I and II, FEV1 < 25% predicted. Pulmonary scintigraphy was performed in a equipped camera with a LEAP collimator that showed the lungs drug penetration after inhalation with 99mTc marked TOBI and pulmonary perfusion with albumin99mTc (phase I). Phase II: after physiotherapy with flutter, the same procedure was done in all patients one month later. The efficiency of marked TOBI-99mTc was 87%. The SS was classified in excellent/good; moderate/regular and severe.
Results: 24 patients (12 males). Mean age (12.85 SD 6.64) ranged from 5–27 years. SS: excellent/good: 8 patients; moderate/regular: 16 patients. TOBI pulmonary deposition was lower in phase II in all pulmonary segments in CF patients with moderate/regular SS when compared with excellent/good SS CF patients ($p = 0.017$).
Conclusion: Physiotherapy with flutter and inhaled salbutamol, immediately before TOBI inhalation makes the TOBI pulmonary deposition less efficient in CF patients and has correlation with the CF severity